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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JHEROEN P.DORENBOSCH, ANATOLY S. BELKIN,
ZAFFER S. MERCHANT, and ALEX P. HIRSBRUNNER

Appeal 2008-2360
Application 10/649,999
Technology Center 2600

Decided: August 19, 2008

Before ROBERT E. NAPPI, JOHN A. JEFFERY,
and R. EUGENE VARNDELL, JR., *Administrative Patent Judges*.

JEFFERY, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134 from the Examiner's rejection of claims 1, 2, 9-17, 22, 23, and 25-30. Claims 3-8 and 18-21 have been indicated as containing allowable subject matter (Ans. 2-3, 18-20) and claim 24 has been cancelled (App. Br. 4; Reply Br. 2). We have jurisdiction

under 35 U.S.C. § 6(b). We affirm and enter new grounds of rejection under § 41.50(b) for claims 22, 23, 25, and 26.

STATEMENT OF THE CASE

Appellants invented a system that improves registration behavior between wireless local area networks (WLANs) and wireless wide area networks (WANs). Specifically, the system determines that a mobile subscriber device operating in a first communications system detects a triggering event, such as detection of a border cell or a degradation in signal quality. In response, a registration sequence is then initiated with a second wireless communications system.

The system also conducts a current or subsequent call via the second communications system responsive to determining that the speed or displacement of the wireless device exceeds a predetermined threshold. But if the speed or displacement of the wireless device does not exceed this threshold, the registration sequence is aborted.[1] Claim 1 is illustrative:

1. A method comprising:

determining that a wireless device operating in a first wireless communication system is detecting a triggering event;

initiating a registration sequence with a second wireless communication system in response to determining that the wireless device is detecting the triggering event;

conducting a current call or a subsequent call via the second wireless communication system in response to determining that a speed or displacement of the wireless device exceeds a first predetermined threshold; and

[1] *See generally* Spec. 1:14-5:8.

aborting the registration sequence in response to determining that a speed or displacement of the wireless device does not exceed a second predetermined threshold.

The Examiner relies on the following prior art references to show unpatentability:

Mantyjarvi	US 2003/0109258 A1	Jun. 12, 2003
Han	US 6,714,785 B1	Mar. 30, 2004 (filed Aug. 30, 1999)
Cheng	US 6,771,963 B1	Aug. 3, 2004 (filed Aug. 17, 1998)
Hammond	US 2004/0203789 A1	Oct. 14, 2004 (filed Nov. 12, 2002)

1. Claims 1, 9-11, 14, 16, 17, 22, and 28 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Han.
2. Claims 2, 12, 15, 23, 25-27, and 29 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Han and Hammond.[2]
3. Claim 13 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Han, Hammond, and Mantyjarvi.
4. Claim 30 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Han, Cheng, and Hammond.

Rather than repeat the arguments of Appellants or the Examiner, we refer to the Briefs and the Answer[3] for their respective details. In this

[2] Although the Examiner includes claim 21 in this rejection (Ans. 10), the Examiner has nonetheless indicated that this claim contains allowable subject matter (Ans. 2, 18). We therefore presume the Examiner's including claim 21 in this rejection was a typographical error.
[3] We refer to (1) the Appeal Brief filed February 2, 2007; (2) the Answer mailed June 19, 2007; and (3) the Reply Brief filed August 20, 2007 throughout this opinion.

decision, we have considered only those arguments actually made by Appellants. Arguments which Appellants could have made but did not make in the Briefs have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(vii).

The Anticipation Rejection

We first consider the Examiner's anticipation rejection of claims 1, 9-11, 14, 16, 17, 22, and 28 over Han (Ans. 3-9). Regarding representative claim 1,[4] Appellants argue that Han's base stations belong to the *same* mobile communications system and, as such, the reference fails to disclose a procedure for transferring a wireless device between *different* systems, namely between a first and second communications system as claimed (App. Br. 13; Reply Br. 4). According to Appellants, since handing off from one cell to another cell in the same system (as in Han) is done without initiating a registration sequence, Han therefore does not initiate nor abort a registration sequence with a second wireless communications system as claimed (App. Br. 14).[5]

The Examiner takes the position that "a 'registration process' to encompass[es] any process included in registration.'" The Examiner reasons that since a handover includes at least a location update, it therefore constitutes a registration process (Ans. 16). Additionally, the Examiner

[4] Appellants argue claims 1, 9-11, 14, 16, 17, 22, and 28 together as a group. *See* App. Br. 12-17; *see also* Reply Br. 4. Accordingly, we select claim 1 as representative. *See* 37 C.F.R. § 41.37(c)(1)(vii).

[5] Although Appellants present additional arguments pertaining to the need for a teaching, suggestion, and motivation to combine references to avoid hindsight in the paragraph bridging Pages 13 and 14 of the Brief, this argument is simply not germane to the Examiner's anticipation rejection.

notes that the different base stations relied upon in Han fully meet the recited first and second wireless communications systems since each base station operates independently of the other and requires a handoff or "registration process" (Ans. 16).

ISSUE

The issue before us, then, is whether Appellants have shown that the Examiner erred in finding that the disclosure of Han anticipates the limitations recited in representative claim 1. The issue turns on (1) whether the different base stations relied upon by the Examiner in Han can be reasonably construed as first and second wireless communications systems, respectively, and (2) if so, whether the handoff procedure between different base stations in Han reasonably meets initiating and aborting a registration sequence as claimed in representative claim 1. For the following reasons, we find that Appellants have shown no such error.

FINDINGS OF FACT

The following Findings of Fact (FF) are relevant to the issues involved and are supported by substantial evidence on the record before us:

1. Han discloses a device for performing a handoff in a mobile communications system to maintain a call when a mobile station travels from one cell to another cell that are serviced by respective base stations (Han, Abstract; col. 1, ll. 7-18; col. 2, ll. 24-43; Fig. 3).

2. To this end, the handoff in Han (e.g., between a service base station and an adjacent base station) is performed based on information

provided from the mobile station including the mobile station's present location and traveling direction (Han, col. 3, ll. 5-8).

3. The mobile station continuously measures the pilot signal power from an adjacent base station, and sends a handoff request to the mobile station's servicing base station (i.e., the "service base station") when the measured value is higher than a threshold (Han, col. 8, ll. 29-32).

4. During a handoff request, the mobile station provides the following information to its servicing base station in the form of a handoff request message: (1) the "location flag";[6] (2) the "direction flag";[7] (3) the "displacement";[8] and (4) pilot power information obtained from the adjacent base station (Han, col. 8, ll. 25-28, 55-57).

5. Upon receipt of the handoff request message, the servicing base station analyzes the message and determines whether a handoff is requested based on (1) the pilot signal power from the adjacent base station, and (2) the location flag (Han, col. 8, ll. 52-61; Fig. 8 (Steps 811 and 813)).

6. If the service base station determines that a handoff is requested, then the handoff is performed so long as there are sufficient spare channels with respect to the adjacent base station (Han, col. 8, l. 66 - col. 9, l. 5; Fig. 8 (Steps 817 and 829). But if the service base station determines that a

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[6] The "location flag" indicates whether a distance between a mobile station and an adjacent base station is relatively longer or shorter than a distance between the mobile station and a service base station (Han, col. 3, l. 66 - col. 4, l. 3).

[7] The "direction flag" indicates a direction that the mobile station travels with respect to a particular base station (i.e., whether the mobile station is traveling towards an adjacent base station or the service base station) (Han, col. 4, ll. 6-10).

[8] The "displacement" represents a value obtained by subtracting a present detection index from a previous detection index (Han, col. 4, ll. 11-16).

handoff is not requested, then the handoff process is cancelled (Han, col. 8, ll. 62-65; Fig. 8 (Steps 815 and 827)).

7. Cheng discloses a procedure for triggering handdowns or handoffs of mobile stations between bordering cells of cellular wireless communications systems (Cheng, Title; Abstract).

8. A handdown or handoff of the mobile station is triggered after (1) deriving the received power level of the control signal at the mobile station, and (2) determining that the received power level is less than a certain threshold (Cheng, Abstract; col. 3, ll. 23-28).

9. Because of its proximity to the second communications system 12 (Cell "B"), the base station 10 of the first communications system 12 (Cell "A") can hand down service such that the mobile station continues to be served by the base station 10, but according to the protocols of the second communications system 22 (Cheng, col. 4, ll. 38-50; col. 5, ll. 14-18; Fig. 1).

10. In Figures 1 and 2, Cheng labels Cell "A" as a "Border Cell" and Cell "B" as an "Analog Cell or F2 Only Cell" (Cheng, Figs. 1 and 2).

PRINCIPLES OF LAW

Anticipation is established only when a single prior art reference discloses, expressly or under the principles of inherency, each and every element of a claimed invention as well as disclosing structure which is capable of performing the recited functional limitations. *RCA Corp. v. Appl. Dig. Data Sys., Inc.*, 730 F.2d 1440, 1444 (Fed. Cir. 1984); *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1554 (Fed. Cir. 1983).

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of

obviousness. *See In re Fine*, 837 F.2d 1071, 1073 (Fed. Cir. 1988). In so doing, the Examiner must make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966).

Discussing the question of obviousness of claimed subject matter involving a combination of known elements, *KSR Int'l v. Teleflex, Inc.*, 127 S. Ct. 1727 (2007), explains:

> When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, §103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill. *Sakraida* [*v. AG Pro, Inc.,* 425 U.S. 273 (1976)] and *Anderson's-Black Rock*[*, Inc. v. Pavement Salvage Co.*, 396 U.S. 57 (1969)] are illustrative—a court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions.

KSR, 127 S. Ct. at 1740. If the claimed subject matter cannot be fairly characterized as involving the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for the improvement, a holding of obviousness can be based on a showing that "there was an apparent reason to combine the known elements in the fashion claimed." *Id.* at 1740-41. Such a showing requires,

> "'some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness' . . . [H]owever, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can

> take account of the inferences and creative steps that a person of ordinary skill in the art would employ."

Id. at 1741 (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

If the Examiner's burden is met, the burden then shifts to the Appellants to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. *See In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992).

ANALYSIS

Since the construction of the terms "first wireless communication system" and "second wireless communication system" is critical to the question of whether Han anticipates representative claim 1, we first address the broadest reasonable interpretation of these terms.

We agree with the Examiner that the respective base stations in Han that are involved in the handoff process (i.e., the servicing and adjacent base stations) fully meet the recited first and second wireless communications systems respectively. As the Examiner indicates, each base station operates independently from the other, at least with respect to each base station's corresponding cell (FF 1). As the principal entity responsible for maintaining wireless communications for mobile stations within a particular cell, such a base station fully meets a "wireless communication system" with respect to that cell.

Although the terms "first" and "second" used in connection with each communications system in claim 1 require different communications systems, nothing in the claim precludes such different communications

systems as reading on different base stations involved in the handover process of Han (i.e., the servicing and adjacent base station). Appellants' argument that these different communications systems recited in the claim correspond to different *networks* (Reply Br. 4) is simply not commensurate with the scope of claim 1. That claim 3 actually specifies that the first and second communications system constitute wireless local area and wide area networks respectively only bolsters our conclusion that the broader, unspecified first and second communications systems of claim 1 could reasonably encompass other types of systems, including base stations.[9]

With this construction, we turn to the disclosure of Han. Based on the functionality of Han noted in the Findings of Fact section above (FF 1-6), we find no error in the Examiner's position that the handover process from a servicing base station to an adjacent base station in Han fully meets the initiation of a registration process with a second wireless communications system responsive to detecting the triggering event, as claimed.

First, the mobile station detects a "triggering event" when the measured pilot signal power from the adjacent base station is higher than a threshold. Detection of this triggering event prompts the mobile station to send a handoff request to the mobile station's servicing base station (FF 3).

Second, the servicing base station will initiate the handoff procedure to the adjacent base station based, at least in part, on information received in

[9] "The doctrine of claim differentiation creates a presumption that each claim in a patent has a different scope…The difference in meaning and scope between claims is presumed to be significant to the extent that the absence of such difference in meaning and scope would make a claim superfluous." *Free Motion Fitness, Inc. v. Cybex Intern., Inc.*, 423 F.3d 1343, 1351 (Fed. Cir. 2005) (internal quotation marks and citations omitted).

the mobile station's handoff request (i.e., the pilot signal power from the adjacent base station and the location flag) (FF 4-6). This procedure, in our view, fully meets "initiating a registration sequence" with the adjacent base station responsive to the information received as a result of the mobile station's "triggering event." By sending the various received information in the handoff request to the servicing base station (FF 4), the analysis of that information effectively "initiates a registration sequence" with respect to the adjacent base station to facilitate the handover. Likewise, if the servicing base station determines from analyzing the received handoff request message that handoff request is not requested—an analysis based, at least in part, on the location, direction, and displacement of the mobile station (FF 4)—then the handoff process is cancelled (FF 6). In this situation, the "registration sequence" would be aborted.

We reach this conclusion noting that Appellants' own description of "registration" in the cited CDMA standard (App. Br. 15) indicates that the registration process involves a mobile station notifying a base station of its location and status. This description of "registration," in our view, reasonably comports with the information provided by the mobile station in Han to facilitate the handover from one base station to another.

For the foregoing reasons, Appellants have not persuaded us of error in the Examiner's anticipation rejection of representative claim 1. Therefore, we will sustain the Examiner's rejection of that claim, and claims 9-11, 14, 16, 17, 22, and 28 which fall with claim 1.

The Obviousness Rejection Based on Han and Hammond

Likewise, we will sustain the Examiner's obviousness rejection of claims 2, 12, 15, 23, 25-27, and 29 over Han and Hammond (Ans. 10-13). Since Appellants' arguments with respect to this rejection pertain to claim 21 (App. Br. 17-18), and claim 21 has been indicated as containing allowable subject matter (Ans. 2, 18), Appellants' arguments pertaining to this rejection are therefore moot.[10] Moreover, Appellants did not particularly point out errors in the Examiner's reasoning to persuasively rebut the Examiner's prima facie case of obviousness regarding the other claims in this rejection. Thus, we are not persuaded that the Examiner erred in rejecting claims 2, 12, 15, 23, 25-27, and 29 for the same reasons discussed above with respect to claim 1. The rejection is therefore sustained.

The Obviousness Rejection Based on Han, Hammond, and Mantjarvi

Likewise, we will sustain the Examiner's obviousness rejection of claim 13 over Han, Hammond, and Mantyjarvi (Ans. 13-14). We find that Appellants have not particularly pointed out errors in the Examiner's reasoning to persuasively rebut the Examiner's prima facie case of obviousness, but merely reiterate the same arguments made in connection with claim 1 (App. Br. 20). Thus, we are not persuaded that the Examiner erred in rejecting claim 13 for the same reasons discussed above with respect to claim 1. The rejection is therefore sustained.

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[10] Appellants' arguments pertaining to the Examiner's rejection of claims 18-20 (App. Br. 18-20) are likewise deemed to be moot in view of the Examiner's indication that these claims contain allowable subject matter (Ans. 2, 18).

The Obviousness Rejection Based on Han, Cheng, and Hammond

Regarding claim 30, Appellants argue that Cheng does not teach or suggest the recited triggering event, namely detection of a wireless local area network border cell that provides information to the wireless device that identifies the cell as a border cell. Rather, Appellants argue, the handoff in Cheng is triggered based on a signal level (App. Br. 20; Reply Br. 4).

The Examiner contends that the cell in Cheng is on the border of two systems and, as such, constitutes a border cell. The Examiner also takes the position that since base station 10 can hand down to a second communications system such that the base station 10 continues to serve the mobile station, but with the protocols of the second system, this functionality teaches providing information to the wireless device that identifies the cell as a border cell as claimed (Ans. 17-18).

The issue before us, then, is whether Appellants have shown that the Examiner erred in finding that the limitations of claim 30 are taught or suggested by the collective teachings of Han, Cheng, and Hammond. The issue turns on whether Cheng's handdown procedure teaches or suggests the recited triggering event, namely detection of a wireless local area network border cell that provides information to the wireless device that identifies the cell as a border cell. For the following reasons, we find that no such error has been shown.

Based on the functionality of Cheng noted in the Findings of Fact section above (FF 7-10), we find no error in the Examiner's reliance on that reference in addition to the other cited references for teaching or suggesting the triggering event recited in claim 30.

First, Cheng expressly labels Cell A as a "Border Cell" in Figures 1 and 2 (FF 10). Second, while Appellants are correct that the handdown in Cheng is triggered based on a received signal level (FF 8), the decrease in signal strength resulting from the mobile station's movement farther away from Cell A (i.e., the border cell) triggering this handdown effectively constitutes information that identifies that cell as a "border cell." That is, the very fact that the received signal from this border cell is sufficiently weak to trigger the handdown is at least some information that identifies that cell as a "border cell," at least with respect to the adjacent cell.

Furthermore, as the Examiner indicates, the base station 10 of the first communications system 12 (Border Cell "A" (FF 10)) continues to serve the mobile station under this condition, but according to the protocols of the second communications system 22 (FF 9). Under this condition, the change of protocol with service provided by Cell A (i.e., the "border cell") reasonably suggests that this border cell provides at least some identifying information to the wireless device.

For the foregoing reasons, Appellants have not persuaded us of error in the Examiner's rejection of claim 30. Therefore, we will sustain the Examiner's rejection of that claim.

NEW GROUNDS OF REJECTION UNDER § 41.50(b)

Under 37 C.F.R. § 41.50(b), we enter new grounds of rejection under 35 U.S.C. § 101 for claims 22, 23, 25, and 26.

Claims 22, 23, 25, and 26 are rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter.

Independent claim 22 recites, in pertinent part, a computer readable

medium having computer instructions to implement the recited functions. The Specification indicates that "the computer-readable medium may comprise computer-readable information *in a transitory state medium* such as a network link and/or a network interface, including a wired network or a wireless network, that allow a computer to read such computer-readable information." (Spec. 12:18-21; 21:10-13; emphasis added). Significantly, this "transitory state medium" is distinguished from tangible computer-readable media such as volatile and non-volatile memory. *Compare* Spec. 7-16 (tangible computer-readable media) *with* Spec. 12:18-21 (transitory state computer-readable media).

Thus, reading independent claim 22 in light of the Specification, the recited "computer readable medium," in our view, encompasses a signal that conveys computer instructions (i.e., a "transitory state" medium). Signals, however, are not patentable subject matter under § 101. *In re Nuijten*, 500 F.3d 1346, 1357 (Fed. Cir. 2007). In reaching this conclusion, the court in *Nuijten* held that signals do not fall within any statutory category of patentable subject matter under § 101. *Id.* The court noted, among other things, that the *transitory nature* of signals precluded their status as manufactures. *See id.* at 1356 ("In essence, energy embodying the claimed signal is fleeting and is devoid of any semblance of permanence during transmission....All signals within the scope of the claim do not themselves comprise some tangible article or commodity.").

Therefore, when read in light of the Specification, independent claim 22 includes both statutory subject matter (computer instructions stored on a tangible medium) and nonstatutory subject matter (computer instructions conveyed by a transitory state medium (e.g., a signal)). According to

USPTO guidelines, however, such claims must be amended to recite solely statutory subject matter.[11]

For the foregoing reasons, independent claim 22 and dependent claims 23, 25, and 26 do not recite statutory subject matter under 35 U.S.C. § 101.

CONCLUSIONS OF LAW

Appellants have not shown that the Examiner erred in finding that the disclosure of Han anticipates representative claim 1 under § 102. Also, Appellants have not shown that the Examiner erred in rejecting claims 2, 12, 13, 15, 23, 25-27, 29, and 30 under § 103 based on the collective teachings of the cited prior art. We have also entered new grounds of rejection under 35 U.S.C. § 101 for claims 22, 23, 25, and 26.

DECISION

We have sustained the Examiner's rejections with respect to all claims on appeal. Therefore, the Examiner's decision rejecting claims 1, 2, 9-17, 22, 23, and 25-30 is affirmed. We have also entered new grounds of rejection under 35 U.S.C. § 101 for claims 22, 23, 25, and 26.

This decision contains a new ground of rejection pursuant to 37 C.F.R. § 41.50(b). This section provides that "[a] new ground of rejection . . . shall not be considered final for judicial review," and also provides that the Appellants, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to

[11] *See* MPEP § 2106(C)(2)(2)(a), Rev. 6, Sept. 2007 ("MPEP") ("[A] claim that can be read so broadly as to include statutory and nonstatutory subject matter must be amended to limit the claim to a practical application.").

the new ground of rejection to avoid termination of the appeal as to the rejected claims:

> (1) Submit an appropriate amendment of the claims so rejected or new evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the proceeding will be remanded to the examiner. . . .
>
> (2) Request that the proceeding be reheard under § 41.52 by the Board upon the same record. . . .

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED
37 C.F.R. § 41.50(b)

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